Tools and Technology

It can be difficult for law enforcement and corrections agencies to stay up-to-date with the rapid growth of tools and technologies designed to help them do their jobs better. NIJ helps agencies keep informed through a variety of print and electronic products and through the National Law Enforcement and Corrections Technology Centers. In 2003, NIJ continued to sponsor the exploration of new technologies, the testing of existing technologies, and the development of standards by which to assess technologies. NIJ field tests put equipment through the rigors of real-world use to assess the equipment's operational potential.

Biometrics and forensics

NIJ continues to explore new forensics techniques, particularly the use of biometrics—measuring physical traits such as facial features, fingerprints, voice, or iris patterns to identify individuals—as a tool for security and criminal justice.

Face recognition for law enforcement. NIJ has sponsored the development of several software technology solutions to enhance and automate such difficult and time-consuming law enforcement investigative efforts as locating missing and exploited children and identifying individuals in video surveillance.

Face recognition technologies glean biometric identification from faces on still and video images, and use related software to find matches on the Internet and in databases and to manage data. Several NIJ-supported prototype systems for face recognition continued development in 2003:

- Missing Child Locator Agent searches the Internet for images of children.
- Video Watchdog matches faces from live or videotaped sequences with mug shot databases.
- Child Online Pornographic Image Eradication System matches unknown images to databases of known child pornography.

Biometrics technology for prisons and jails. Several NIJ projects ongoing in 2003 are testing biometrics technology for use in prisons and jails. At the Prince

Georges County, Maryland, correctional facility, NIJ has developed a biometrics system that uses facial recognition technology to identify people entering and leaving the facility. This allows jailers to make sure only authorized persons enter and exit the institution and to quickly account for all staff and visitors inside an institution in case of an emergency. In addition, NIJ has partnered with the Space and Naval Warfare Systems Center and the Naval Correctional Facility, both in Charleston, South Carolina, to develop a prototype inmate accountability system using a combination of biometrics to control inmate movement. The system uses hand geometry and fingerprint scanners to control inmate movement from one location to another inside the institution. Both projects will aid in the development of valuable tools that will assist jails and prisons in the management of high-risk offenders such as terrorists.

Identifying arrestees. NIJ is evaluating the use of facial recognition technology to identify arrestees across databases in multiple counties in South Florida.

Uncovering drug labs. Many areas of the United States have experienced a sharp increase in illicit methamphetamine manufacturing over the last several years. NIJ awarded $300,000 to the Washington State Patrol in 2003 to identify the chemicals used in both traditional and emerging methamphetamine manufacturing techniques, develop capillary electrophoresis-based methods for practical and robust detection of these chemicals, and disseminate the research findings to forensic laboratories to assist them in their investigation of the production of methamphetamine.

Information sharing through interoperability

Effective communication within and among public safety agencies is vital, especially during critical incidents that span jurisdictional boundaries and require different agencies to coordinate efforts. NIJ has undertaken a major effort to explore ways to improve interoperability among public safety agencies.

NIJ's AGILE program is dedicated to studying interoperability options and making valuable information available to law enforcement officials, firefighters, and emergency technicians in different jurisdictions in communities across the country.

Through the AGILE program, NIJ created the National Task Force on Interoperability in 2002. The task force, which includes representatives from 18 national associations representing State and local government and public safety officials, held a series of discussions that sought to address interoperability issues in a more comprehensive way. Through this dialogue, the task force developed *Why Can't We Talk? Working Together to Bridge the Communications Gap to Save Lives* in 2003, a video guide for public officials to raise awareness about the importance of interoperability, to provide the basic information necessary to understand the impact of this issue on their constituencies, and to provide

guidance on the initial steps to take in developing interoperable public safety radio communication systems.

AGILE continued support in 2003 of the Capital Wireless Integrated Network (CapWIN), launched in 1999 by officials from Maryland, Virginia, and the District of Columbia with initial funding from NIJ and the U.S. Department of Transportation. The project aims to create the first integrated multi-State transportation and public safety information wireless network in the United States. Once completed, CapWIN will allow police officers, firefighters, transportation officials, and other emergency personnel to communicate directly with each other during a critical incident using standard laptops. As a result, personnel from different agencies will be able to develop a coordinated response to an incident. In 2003, personnel from 16 agencies in the region received training at the CapWIN Training Center in College Park, Maryland, on how to use the CapWIN network interface. A total of 35 area agencies were active in the program in 2003.

Another significant AGILE activity in 2003 was spreading the word about the development of the Computer-Assisted Pre-Coordination Resources and Database (CAPRAD) system, a database created at the request of the Federal Communications Commission to assist the agency in the orderly allocation of new radio frequencies to public safety agencies. The FCC has decided that all frequency allocation in the 700 megahertz band will be handled through CAPRAD.

The *Arizona Daily Star* informed its readers on October 23, 2002, that the COPLINK program, developed by Tucson police and the University of Arizona with NIJ funds, would be used in the effort to capture the Washington, D.C.-area sniper. At the request of local and Federal law enforcement officials, two Tucson police officers and four COPLINK program technicians flew to Washington to implement the program, which links data from various systems and allows officers to search for suspects with partial information. *From http://www.dailystar.com*

For more information:

- Visit the AGILE program page at http://www.nlectc.org/agile.
- For a copy of *Why Can't We Talk? Working Together to Bridge the Communications Gap to Save Lives* and other products of the National Task Force on Interoperability, go to the task force publications page at http://www.nlectc.org/agile/ntfi/publications.html.

Squad Car Identification (SQUID) program. NIJ work continued in 2003 in the development of this mobile criminal investigation technology. SQUID allows police in the field to take fingerprints and send them via a wireless connection and to access photo images so the officer can receive on-the-spot identification of suspects. SQUID can also be used as a crime scene data-gathering device as investigators record conversations, take digital photos, and record field ID's.

THE NATIONAL LAW ENFORCEMENT AND CORRECTIONS TECHNOLOGY CENTER SYSTEM

NIJ's National Law Enforcement and Corrections Technology Center (NLECTC) system helps law enforcement and corrections agencies learn about and use current and emerging technologies.

NLECTC, located in regional centers and specialty offices across the country, includes partnerships with host organizations with specific areas of technical expertise. Through these partnerships, NLECTC staff have access to the latest innovations in research and development.

The NLECTC system serves as an "honest broker" resource for technology information, assistance, and expertise. The NLECTC system and staff help agencies identify the most effective technologies that will meet specific needs, serve as proxy scientists and engineers to agencies needing investigative support or other assistance, test and demonstrate both existing and emerging technologies, help departments take advantage of surplus property programs that make Federal property available to law enforcement and corrections personnel at little or no cost, and disseminate information to the justice community about justice-related technologies.

The NLECTC system consists of five regional centers and is complemented by several specialty offices and a national center.

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Highlights of NLECTC activities in 2003 include:

Sharing corrections intelligence. The Border Research and Technology Center is participating in a project to improve the collection, use, and dissemination of corrections intelligence. Corrections and law enforcement will jointly identify and share sources of corrections intelligence (routine operations data, gang information, terrorism information, money exchanges, telephone and mail monitoring, and so forth). Mining, collating, and cross-referencing these data should assist prisons in maintaining safer, more secure operations and assist Federal, State, and local law enforcement in detecting, preventing, and prosecuting criminal behavior.

Port security project. The NLECTC system is participating in project SEAHAWK, aimed at developing an integrated approach to providing port security in Charleston, South Carolina, the East Coast's second busiest cargo port. NLECTC assists the 20 agencies participating in the project by providing technology assessments and identifying integrated solutions.

Walk-through metal detector testing. NLECTC, in conjunction with the Transportation Security Administration, conducted tests of walk-through metal detectors for use in public safety applications. Though none of the models submitted for testing met all of the requirements of the standard, the first round of testing should lead to further refinement of commercially available detectors, and ultimately to the establishment of an ongoing voluntary compliance testing program.

Kansas City information sharing project. NLECTC is assisting more than 85 agencies in the Kansas City metropolitan area with the development of the Kansas City Regional Crime Analysis Geographic Information System. The goal is to help participating agencies develop a broader picture of crime trends and share resource costs effectively. The approach is to use crime mapping techniques to analyze data across agencies and improve the agencies' ability to solve cases sooner.